UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/795,800	03/08/2004	Jose Manuel Menendez	U 015063-5	7715

7590 10/16/2009

Ladas & Parry
26 West 61 Street
New York, NY 10023

EXAMINER	
WOLLSCHLAGER, JEFFREY MICHAEL	
ART UNIT	PAPER NUMBER
1791	
MAIL DATE	DELIVERY MODE
10/16/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/795,800	MENENDEZ ET AL.	
	Examiner	Art Unit	
	JEFFREY WOLLSCHLAGER	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 July 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-15 and 21-40* is/are pending in the application.

4a) Of the above claim(s) *11-15,21-25 and 36-40* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *26-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant's amendment to the claims filed July 28, 2009 has been entered. Claims 26 and 33 are currently amended. Claims 1-10 and 16-20 have been canceled. Claims 11-15, 21-25 and 36-40 remain withdrawn from further consideration. Claims 26-35 are under examination.

Claim Objections

Claim 32 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Dependent claim 32 recites that the rough surface is a machined surface. This limitation currently is present in independent claim 26.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 26-35 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 7 and 14 of U.S. Patent No. 6,508,909 in view of either of Artz et al. (US 2002/0173575) or Younie et al. (US 5,817,269) as evidenced by Coefficients of Friction for Rubber (The Physics Factbook; Edited by Glen Elert). Although the conflicting claims are not identical, they are not patentably distinct from each other.

Claim 1 of U.S. Patent 6,508,909 claims a process for manufacturing a structural member from pre-cured element composite materials and green stiffeners (preamble) comprising: providing at least a first subcomponent of composite material (steps (a) and (b)); providing at least a second subcomponent of composite material (step (c)); attaching an expansion compensating tool/angle pieces to the second subcomponent (step (d)); placing the second subcomponent with said tooling on the first subcomponent and bonding it to the latter by means of an uncured structural adhesive (step (d)); covering the assembly with a vacuum bag (step (e)); performing an autoclave cycle for curing the curable material (step (f)); and withdrawing the assembly from the curing autoclave (step (f)).

Regarding claim 26 of the instant application, claim 1 of the ‘909 patent does not explicitly state the surface of the tooling is a surface rough enough to promote friction in an amount effective to achieve common thermal expansion. Claim 1 of the ‘909 patent also does not teach removing the angle pieces/tooling from the composite structure. However, this is implied in the ‘909 patent and would have been obvious to one having ordinary skill in the art in

order to be able to reuse the angle pieces and to not provide unnecessary weight to the completed part. Further, each of Artz et al. and Younie et al. disclose a method of forming composite articles wherein the tooling is chosen such that it achieves a common thermal expansion with the component without requiring the tooling to have the same coefficient of thermal expansion.

It would have been obvious to one having ordinary skill to have employed tooling that achieves common thermal expansion as the component for the purpose, as suggested by either of Artz et al. or Younie et al. of facilitating production of a quality composite part. Claims 27-35 are conventional limitations rendered obvious by the prior art.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 26, 28, 29, 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cerezo Pancorbo et al. (EP 1134070) in view of Artz et al. (US 2002/0173575).

Regarding claims 26, 28, and 32, Cerezo Pancorbo et al. teach a process for manufacturing a monolithic composite structure from a precured and an uncured subcomponent comprising: providing at least a first subcomponent of composite material; providing at least a second subcomponent of composite material; attaching expansion compensating tooling/angle pieces to the second subcomponent; placing the second subcomponent with said tooling on the first subcomponent and bonding it to the latter by means of an uncured structural adhesive; covering the assembly with a vacuum bag; performing an autoclave cycle for curing the curable material; withdrawing the assembly from the curing autoclave (Abstract; paragraphs [0003, 0013, 0014, 0020, 0021, 0031, 0036, and 0038]; claim 1).

Cerezo Pancorbo et al. do not explicitly teach removing the angle pieces/tooling from the composite structure. However, this is implied and suggested in the reference and would have been obvious to one having ordinary skill in the art in order to be able to reuse the angle pieces for subsequent use and to not introduce unnecessary weight to the completed aeronautical wing. Additionally, Cerezo Pancorbo et al. do not explicitly state the surface of the tooling is a surface rough enough to promote friction in an amount effective to achieve common thermal expansion. However, Artz et al. (Abstract; paragraphs [0003-0008; 0013; 0020-0021; 0024-0027 and 0046]) discloses a method of forming composite articles wherein the tooling is chosen such that it achieves a common thermal expansion with the components. The examiner notes that Artz et al. do not require the coefficient of thermal expansion to be the same, but only requires that they be "similar enough" (paragraph [0006]) to achieve common thermal expansion. The examiner notes that the tool of Artz et al. is machined into the desired form (paragraph [0033]) with a lathe or milling machine (paragraph [0035]). As such, the surface is machined and further, since the machined surfaces of the tool employed by either of Artz et al.

et al. achieve the desired thermal expansion, they are reasonably considered "rough enough" (i.e. are roughened).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have modified the method of Cerezo Pancorbo et al. and to have employed the tooling suggested by Artz et al. for the purpose of facilitating the production of a quality composite article.

As to claim 29, the first component taught by Cerezo Pancorbo et al. is an aircraft skin and the second component is a stiffener (paragraphs [0013 and 0014]).

As to claim 33, the combination relies upon the "machined" and "roughened" limitation set forth in claim 26.

As to claim 34, Cerezo Pancorbo et al. employ first and second composite components (Abstract; claim 1).

As to claim 35, Cerezo Pancorbo et al. employ temperatures and pressures within the vacuum bagging and autoclaving step implicitly within recommended ranges in order to produce a viable product (paragraphs [0036-0038]; claim 1). These values would have been readily optimized by the ordinarily skilled artisan.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cerezo Pancorbo et al. (EP 1134070) in view of Artz et al. (US 2002/0173575) as applied to claims 26, 28, 29, and 32-35 above, and further in view of Wilden et al. (U.S. Patent 5,242,523).

As to claim 27, the combination teaches the method set forth above. Cerezo Pancorbo et al. do not teach using a precured second component. However, in an analogous method, Wilden et al. (col. 4, lines 58-65) teach that either precured or uncured second components may be used.

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have utilized precured second components, such as the stiffener/stringer components as taught by Wilden et al., because they are easier and cleaner to handle and are able to provide a support structure immediately with the initial application to the first component.

Claims 26 and 28-32, 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cerezo Pancorbo et al. (EP 1134070) in view of Younie et al. (US 5,817,269) as evidenced by Coefficients of Friction for Rubber (The Physics Factbook; Edited by Glen Elert).

Regarding claims 26 and 28, Cerezo Pancorbo et al. teach a process for manufacturing a monolithic composite structure from a precured and an uncured subcomponent comprising: providing at least a first subcomponent of composite material; providing at least a second subcomponent of composite material; attaching expansion compensating tooling/angle pieces to the second subcomponent; placing the second subcomponent with said tooling on the first subcomponent and bonding it to the latter by means of an uncured structural adhesive; covering the assembly with a vacuum bag; performing an autoclave cycle for curing the curable material; withdrawing the assembly from the curing autoclave (Abstract; paragraphs [0003, 0013, 0014, 0020, 0021, 0031, 0036, and 0038]; claim 1).

Cerezo Pancorbo et al. do not explicitly teach removing the angle pieces/tooling from the composite structure. However, this is implied and suggested in the reference and would have been obvious to one having ordinary skill in the art in order to be able to reuse the angle pieces for subsequent use and to not introduce unnecessary weight to the completed aeronautical wing. Additionally, Cerezo Pancorbo et al. do not explicitly state the surface of the tooling is a

surface rough enough to promote friction in an amount effective to achieve common thermal expansion. However, Younie et al. (claim 1, step (e) – the tool matches the thermal expansion characteristics of the prepreg, but comprises materials having CTE's different than the prepreg, by varying thicknesses, etc.; Figure 14; col. 1, lines 62-65; col. 2, line 55-col. 3, line 47; col. 8, lines 13-17; col. 10, lines 14-64; col. 11, lines 23-37) discloses a method of forming composite articles wherein the tooling is chosen such that it achieves a common thermal expansion with the components. Younie et al. teach applying an exterior cover of rubber (82) around the aluminum tooling. As evidenced by Coefficients of Friction of Rubber the coefficient of friction for rubber is higher than the coefficient of friction for aluminum (Table). As such, rubber is intrinsically a "friction enhancer" in Younie et al's tooling.

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have modified the method of Cerezo Pancorbo et al. and to have employed the tooling suggested by Younie et al. for the purpose of facilitating the production of a quality composite article.

As to claim 29, the first component taught by Cerezo Pancorbo et al. is an aircraft skin and the second component is a stiffener (paragraphs [0013 and 0014]).

As to claims 30 and 31, Cerezo Pancorbo et al. teach the tooling consists of L-shaped metal beams adapted to the geometry of the second component (Figure 2 (4, 4'); paragraph [0020]).

As to claim 32, the metal tooling/angle piece surfaces taught by Cerezo Pancorbo et al. would have necessarily been machined in order to produce the part.

As to claim 34, Cerezo Pancorbo et al. employ first and second composite components (Abstract; claim 1).

As to claim 35, Cerezo Pancorbo et al. employ temperatures and pressures within the vacuum bagging and autoclaving step implicitly within recommended ranges in order to produce a viable product (paragraphs [0036-0038]; claim 1). These values would have been readily optimized by the ordinarily skilled artisan.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cerezo Pancorbo et al. (EP 1134070) in view of Younie et al. (US 5,817,269) as evidenced by Coefficients of Friction for Rubber (The Physics Factbook; Edited by Glen Elert), as applied to claims 26 and 28-32, 34 and 35 above, and further in view of Wilden et al. (U.S. Patent 5,242,523).

As to claim 27, the combination teaches the method set forth above. Cerezo Pancorbo et al. do not teach using a precured second component. However, in an analogous method, Wilden et al. (col. 4, lines 58-65) teach that either precured or uncured second components may be used.

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have utilized precured second components, such as the stiffener/stringer components as taught by Wilden et al., because they are easier and cleaner to handle and are able to provide a support structure immediately with the initial application to the first component.

Claims 26, 27, and 29, 32, 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breur et al. (U.S. Patent 6,306,239) in view of Artz et al. (US 2002/0173575).

Regarding claims 26 and 27, Breur et al. teach a process for manufacturing a monolithic composite structure from precured subcomponents comprising: providing at least a first

subcomponent of composite material; providing at least a second subcomponent of composite material; attaching expansion compensating tooling/strengthening profile members to the second subcomponent, placing the second subcomponent with said tooling on the first subcomponent and bonding it to the latter by means of an uncured structural adhesive; covering the assembly with a vacuum bag; performing an autoclave cycle for curing the curable material; withdrawing the assembly from the curing autoclave; and removing the tooling to obtain a monolithic composite structure (Abstract; Figure 2 (3) (7); Figure 3; col. 6, lines 9-22; col. 7, lines 4-38; col. 8, lines 13-17). Breur et al. further teach the tooling contains “protruding webs” (col. 7, lines 22-38). However, Artz et al. (Abstract; paragraphs [0003-0008; 0013; 0020-0021; 0024-0027 and 0046]) disclose a method of forming composite articles wherein the tooling is chosen such that it achieves a common thermal expansion with the components. The examiner notes that Artz et al. do not require the coefficient of thermal expansion to be the same, but only requires that they be "similar enough" (paragraph [0006]) to achieve common thermal expansion. The examiner notes that the tool of Artz et al. is machined into the desired form (paragraph [0033]) with a lathe or milling machine (paragraph [0035]). As such, the surface is machined and further, since the machined surfaces of the tool employed by either of Artz et al. et al. achieve the desired thermal expansion, they are reasonably considered “rough enough” (i.e. are roughened).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have modified the method of Breur et al. and to have employed the tooling suggested by Artz et al. for the purpose of facilitating the production of a quality composite article.

As to claim 29, the first component taught by Breur et al. is an aircraft skin and the second component is a stiffener (Abstract; col. 1, lines 11-22; col. 5, lines 22-33).

As to claim 32, the metal tooling surface taught by Breur et al. would have necessarily been machined in order to produce the part.

As to claim 34, Breur et al. employ first and second composite components (Abstract).

As to claim 35, Breur et al. employ temperatures and pressures within the vacuum bagging and autoclaving steps implicitly within recommended ranges in order to produce a viable, high quality, product (col. 7, lines 30-40). These values would have been readily optimized by the ordinarily skilled artisan.

Claims 26, 27, and 29-32, 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breur et al. (U.S. Patent 6,306,239) in view of Younie et al. (US 5,817,269) as evidenced by Coefficients of Friction for Rubber (The Physics Factbook; Edited by Glen Elert).

Regarding claims 26 and 27, Breur et al. teach a process for manufacturing a monolithic composite structure from precured subcomponents comprising: providing at least a first subcomponent of composite material; providing at least a second subcomponent of composite material; attaching expansion compensating tooling/strengthening profile members to the second subcomponent, placing the second subcomponent with said tooling on the first subcomponent and bonding it to the latter by means of an uncured structural adhesive; covering the assembly with a vacuum bag; performing an autoclave cycle for curing the curable material; withdrawing the assembly from the curing autoclave; and removing the tooling to obtain a monolithic composite structure (Abstract; Figure 2 (3) (7); Figure 3; col. 6, lines 9-22; col. 7, lines 4-38; col. 8, lines 13-17). Breur et al. further teach the tooling contains “protruding webs” (col. 7, lines 22-38). However, Younie et al. (claim 1, step (e) – the tool matches the thermal expansion characteristics of the prepreg, but comprises materials having CTE’s different than

the prepreg, by varying thicknesses, etc.; Figure 14; col. 1, lines 62-65; col. 2, line 55-col. 3, line 47; col. 8, lines 13-17; col. 10, lines 14-64; col. 11, lines 23-37) disclose a method of forming composite articles wherein the tooling is chosen such that it achieves a common thermal expansion with the components. Younie et al. teach applying an exterior cover of rubber (82) around the aluminum tooling. As evidenced by Coefficients of Friction of Rubber the coefficient of friction for rubber is higher than the coefficient of friction for aluminum (Table). As such, rubber is intrinsically a "friction enhancer" in Younie et al's tooling.

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have modified the method of Breur et al. and to have employed the tooling suggested by Younie et al. for the purpose of facilitating the production of a quality composite article.

As to claim 29, the first component taught by Breur et al. is an aircraft skin and the second component is a stiffener (Abstract; col. 1, lines 11-22; col. 5, lines 22-33).

As to claims 30 and 31, Breur et al. teach the tooling consists of L-shaped metal beams adapted to the geometry of the second component (col. 7, lines 5-28; Figure 2).

As to claim 32, the metal tooling surface taught by Breur et al. would have necessarily been machined in order to produce the part.

As to claim 34, Breur et al. employ first and second composite components (Abstract).

As to claim 35, Breur et al. employ temperatures and pressures within the vacuum bagging and autoclaving steps implicitly within recommended ranges in order to produce a viable, high quality, product (col. 7, lines 30-40). These values would have been readily optimized by the ordinarily skilled artisan.

Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cerezo Pancorbo et al. (EP 1134070) in view of Younie et al. (US 5,817,269) as evidenced by Coefficients of Friction for Rubber (The Physics Factbook; Edited by Glen Elert), as applied to claims 26, 28-32, 34 and 35 above, and further in view of Kline et al. (US 6,045,651).

As to claim 33, the combination teaches the method set forth above. Cerezo Pancorbo do not teach employment of a sandpaper roughened tooling. However, Kline et al. teach a method of producing an analogous composite material where plies of material are held in place with grit/sand strips (Figure 5; col. 10, lines 47-62).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have modified the tooling employed by Cerezo Pancorbo and to have employed grit/sand strips with the tooling, as suggested by Kline et al., for the purpose of improving the ability to hold the plies in place during the process.

Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cerezo Pancorbo et al. (EP 1134070) in view of Artz et al. (US 2002/0173575), as applied to claims 26, 28-32, 34 and 35 above, and further in view of Kline et al. (US 6,045,651). *Note: This is an alternative rejection to the rejection of claim 33 above.*

As to claim 33, the combination teaches the method set forth above. Cerezo Pancorbo et al. do not teach employment of a sandpaper roughened tooling. However, Kline et al. teach a method of producing an analogous composite material where plies of material are held in place with grit/sand strips (Figure 5; col. 10, lines 47-62).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have modified the tooling employed by Cerezo Pancorbo

and to have employed grit/sand strips with the tooling, as suggested by Kline et al., for the purpose of improving the ability to hold the plies in place during the process.

Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Breur et al. (U.S. Patent 6,306,239) in view of Artz et al. (US 2002/0173575), as applied to claims 26, 27, 29-32, 34 and 35 above, and further in view of Kline et al. (US 6,045,651). *Note: This is an alternative rejection to the rejection of claim 33 above.*

As to claim 33, the combination teaches the method set forth above. Breur et al. do not teach employment of a sandpaper roughened tooling. However, Kline et al. teach a method of producing an analogous composite material where plies of material are held in place with grit/sand strips (Figure 5; col. 10, lines 47-62).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have modified the tooling employed by Cerezo Pancorbo and to have employed grit/sand strips with the tooling, as suggested by Kline et al., for the purpose of improving the ability to hold the plies in place during the process.

Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Breur et al. (U.S. Patent 6,306,239) in view of Younie et al. (US 5,817,269) as evidenced by Coefficients of Friction for Rubber (The Physics Factbook; Edited by Glen Elert), as applied to claims 26, 27, 29-32, 34 and 35 above, and further in view of Kline et al. (US 6,045,651).

As to claim 33, the combination teaches the method set forth above. Breur et al. do not teach employment of a sandpaper roughened tooling. However, Kline et al. teach a method of producing an analogous composite material where plies of material are held in place with grit/sand strips (Figure 5; col. 10, lines 47-62).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have modified the tooling employed by Cerezo Pancorbo and to have employed grit/sand strips with the tooling, as suggested by Kline et al., for the purpose of improving the ability to hold the plies in place during the process.

Response to Arguments

Applicant's arguments filed July 28, 2009, in view of the amendment to the claims, have been fully considered. To the extent applicant's arguments are still applicable and non-persuasive in view of the amendment to the claims the examiner submits the following response. Applicant's arguments directed to the Artz et al. reference have been fully considered regarding the recited "machined" "roughened" surface, but they are not persuasive. The examiner submits that the Artz et al. still teach and suggest a machined surface that is rough enough from the production process to promote friction in an amount effective to achieve common thermal expansion. As such, the examiner submits and maintains that the surface is "roughened" since it is rough enough to achieve the claimed result and the surface has been "machined". Further, the examiner submits that in view of the teaching of Artz et al. compared with the instant disclosure, it is not clear how the claims can be amended to distinguish over the teaching of Artz et al. by only addressing the issue of "roughness".

However, the examiner notes that the rejections based upon Artz et al. singularly in combination with either of Cerezo Pancorbo or Breur et al. can be overcome by making it clear in claim 26 that the expansion compensating tool having a "machined" and "roughened" surface consists of L-shaped or I-shaped metal beams. It is noted that the combination with Cerezo Pancorbo or Breur et al. with Artz et al. is a substitution combination and thus the expansion

compensating tool suggested by the combination replaces the metal tool of Cerezo Pancorbo with the tool of Artz et al.

Applicant argues that Younnie et al. do not provide a surface having a friction enhancer attached to the expansion compensating tool. This argument is not persuasive. The aluminum tool of Younnie et al. has a rubber covering applied to the surface. As evidenced by Coefficients of Friction for Rubber (The Physics Factbook; Edited by Glen Elert), the friction coefficient of rubber is higher than that of aluminum. As such, it is a “friction enhancer”.

However, the examiner notes that the rejections based upon Younnie et al. singularly in combination with either of Cerezo Pancorbo or Breur et al. can be overcome by making it clear in claim 26 that the expansion compensating tool having a "machined" and "roughened" surface consists of L-shaped or I-shaped metal beams and that the roughened and machined metal surfaces of these metal beams are in direct contact with the second subcomponent and by eliminating the alternative of a friction enhancer or sandpaper to achieve the required rough surface. It is noted that the combination with Cerezo Pancorbo or Breur et al. with Younnie et al. is a substitution combination and thus the expansion compensating tool suggested by the combination replaces the metal tool of Cerezo Pancorbo with the tool of Artz et al.

As to the teachings of Breur et al. and Kline, applicant argues that Breur et al. do not teach employment of the machined surface or friction enhancer containing surface and that Kline is directed to a different process that does not provide motivation to be used in the combination. This argument is not persuasive. The examiner notes that col. 7, lines 1-30 in Breur et al suggests and implies the desire to avoid slippage of the tooling and Kline (col. 10, lines 47-62) make it clear that the grit/sandpaper is employed to prevent slippage of analogous materials. As such, the examiner maintains that the rejections based upon Breur et al. and Kline are proper.

It is the examiner's position that the claims would need to be amended to overcome the rejection. Further, it is not completely clear to the examiner that the suggested amendments would put the application into condition for allowance. The suggested amendments are offered in an attempt to expedite prosecution and overcome the current rejection, but would likely require further search.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEFFREY WOLLSCHLAGER whose telephone number is (571)272-8937. The examiner can normally be reached on Monday - Thursday 6:45 - 4:15, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeff Wollschlager/
Examiner, Art Unit 1791

October 16, 2009